

CLAIMS

1. A power transmission drive (1, 17) comprising a synchronous drive for an internal combustion engine (2), with which a rotating angle between a driven member (3) and a drive member (4a, 4b; 19) can be detected, wherein a member of the power transmission drive (1, 17) includes an electronic controller (14) which interacts with a control system of the internal combustion engine (2), characterized in that a sensor (11a, 11b, 11c, 36), comprising a transducer, detects an oscillating angle deviation, a rotating angle deviation, an irregularity in rpm, or a correcting movement between the driven member (3) and the drive member (4a, 4b; 19) and sends a signal to the controller (14), which calculates a control parameter, wherein after a defined limit value is exceeded, the controller (14) initiates an emergency program of the internal combustion engine, preferably through an actuator (15).
2. Device according to claim 1, wherein a free engine clutch (26) allocated to the driven member (3) or the drive member (4a, 4b; 19) protects a drive for an accelerated angular velocity of the power transmission drive (1, 17).
3. Device according to claim 1, wherein, for forming a coupled drive, a power transmission means (18) of the power transmission drive (17) is connected to a running wheel (22) of the power transmission drive (1) acting as a control drive for the internal combustion engine (2).
4. Device according to claim 3, wherein the power transmission drive (17) includes, as a drive member (19), a fuel pump, which, in connection with an associated sensor (36), the controller (14), and a free engine clutch (26),

prevents full-load operation of the internal combustion engine (2) for a disruption in a function of the fuel pump.

5 5. Device according to claim 3, wherein a free engine clutch (26) is arranged in a running wheel (23) between an inner ring (27) locked in rotation with a pump shaft (25) and an outer ring (29) of the running wheel (23).

10 6. Device according to claim 4, wherein the free engine clutch (26) is inserted within a housing (30) of the fuel pump and connects to two journals of the pump, which is a high-pressure pump.

7. Device according to claim 2, wherein the free engine clutch (26) comprises a clamping body free-wheel or a clamping roller free-wheel.

15 8. Device according to claim 1, wherein the sensor (11c) is allocated to a unit of the power transmission drive (1), for example, a tensioning device (8), a camshaft adjuster, a deflection roller (6), or a water pump.

20 9. Device according to claim 1, wherein after an oscillating angle deviation, rotating angle deviation, or irregularity in rpm set as a limit value has been exceeded, the controller (14) triggers an acoustic and/or optical signal.

25 10. Device according to claim 1, wherein measurement values, which exceed the limit value, and also measurement values, which correspond to a tolerance range preset for the limit value, are stored in a fault memory of the controller (14).

11. Device according to claim 1, wherein the measurement of the rotating angle deviation between the drive member and the driven member is taken for a warm-running internal combustion engine.

5 12. Device according to claim 1, wherein, in an operating state of the internal combustion engine (2), in connection with the at least one sensor (11a, 11b, 11c, 36) and the controller (14), a continuous comparison of measurement values is performed by the controller for determining an oscillating angle deviation, an irregularity in rpm, or a rotating angle
10 deviation between the driven member (3) and the drive member (4a, 4b; 19).

13. Device according to claim 1, wherein the power transmission means (5, 18) for the power transmission drive (1, 17) comprises a toothed belt.

15 14. Device according to claim 1, wherein a tensioning device (8, 21) is allocated to a loose section (20, 24) of the power transmission drive (1, 17).

15. Device according to claim 4, wherein the fuel pump, which is pivotally supported against a spring element simultaneously acts as a tensioning
20 device (21) of the power transmission drive (17).

16. Device according to claim 1, wherein the power transmission drive (1) includes a starter generator, with which the internal combustion engine (2) is started in a start mode, and the internal combustion engine (2) drives the
25 power transmission drive (1) in a generator mode.